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Master Planning and CSO Facilities Planning

PUBLIC INFORMATION SUMMARY AND UPDATE

January 1993

In March of 1992, the Massachusetts Water Resources Authority initiated a new Master Planning and Combined Sewer Overflows Facilities Planning project. This effort builds on and expands the recommendations for further study included in the 1990 CSO Facilities Plan. One of the primary purposes of the project is to determine whether the Authority can achieve significant cost savings by integrating mandated CSO control measures with other ongoing improvements in the wastewater collection system and with the construction of the new Deer Island wastewater treatment facilities. The project includes (1) a comprehensive assessment of the CSO problem based on metered flows and a revised model, and (2) an evaluation of new alternatives that would utilize the wastewater collection and treatment system as a whole to provide the required level of CSO control.

The project will be conducted in two phases. The Phase I master planning will be followed by Phase II planning for specific CSO facilities and other infrastructure improvements.

Phase I Master Planning

The Phase I master planning activities include two concurrent efforts. The first is a technical field program that is geared to provide more thorough knowledge of the operation of the wastewater collection system and the activation and impacts of CSOs. New flow monitoring and collection system inspections have been performed in Boston, Cambridge, Somerville and Chelsea, as well as in the MWRA's interceptor system. All known and accessible CSO outfalls and associated regulator structures have been inspected to determine whether the outfalls are still active and to define the specific conditions that result in CSO discharges. The information gathered is being used in computer modeling to calculate revised CSO flow projections and in the development of System Optimization Plans to improve collection system operation in the four CSO communities.

Flow meters were installed in 90 key locations and recorded the duration, frequency and volume of overflows during the spring, summer and fall of 1992. In addition to CSO meters, 25 other meters were installed to quantify flows in the MWRA interceptor system. These meters were located so that they can supplement information from the MWRA's existing permanent wastewater flow metering system and can gather flow information at

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upstream boundaries of the service area to be analyzed. Over 60 rainfall events occurred during the monitoring period.

The flow monitoring program includes the installation of temporary rain gauges in the vicinity of CSOs, so that measured overflows can be correlated to local rainfall data in addition to general regional data provided by the National Weather Service. The field program included water quality sampling at ten CSO outfalls during two storm events in concert with the flow metering. This information will be used as a basis for refinements in the projection of CSO pollutant loadings. All of the monitoring equipment was in place by the end of May. The new flow and load data is being analyzed for the first court milestone, a submission to the Environmental Protection Agency and the Conservation Law Foundation at the end of February, 1993. This Interim Report will determine whether the recommendations of the 1990 Facilities Plan to construct a $1.2 billion deep rock tunnel and near-surface storage system must be carried forward or whether the new information is sufficient to convince the regulatory agencies that further integrated planning should be undertaken.

In June of 1993, the MWRA is required to submit a System Optimization Plan (SOP) for the four CSO communities of Boston, Cambridge, Chelsea and Somerville. SOP measures are relatively inexpensive and easily implemented improvements that enhance the capacity of the existing system to transport flow to the treatment plant. Implementation of these types of improvements can further reduce combined sewer overflows. It appears that there is great potential to reduce overflows in the system through SOPs and work has begun with the four communities to identify and evaluate potential measures.

System Master Plans

The second effort in Phase I will be to build a framework for developing a comprehensive System Master Plan (SMP) for the entire wastewater collection and treatment system. A special team of engineering and environmental experts will assist the MWRA in developing CSO control and wastewater treatment strategies and in establishing an analytical methodology for evaluating alternatives. The CSO control strategies will include various combinations of new infrastructure, utilization of interceptor capacity, reduction of infiltration and inflow, and implementation of new wastewater treatment options. The goal is to develop a system-wide integrated plan that ensures CSO control requirements are met, while at the same time minimizing the overall costs of wastewater collection and treatment.